The Functional Movement Screen as a Predictor of Tactical Athlete Performance

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Introduction

“The Functional Movement Screen as a Predictor of Police Occupational Task Performance”

Aim

Investigate the relationship between movement quality and occupational task performance

Question

Can the Functional Movement Screen predict occupational performance in police recruits?

Image: Approved by NSW Police

Methods

Procedures

- As part of their training process, 173 police recruits completed 4 occupational measures
- Police recruits were then divided into tutor groups by College staff who were blinded to the study
- The research team then randomly selected two tutor groups, to complete the FMS
- n= 53 police recruits

Exclusion criteria

- Any recruit who did not give informed consent
- Suffering from a current injury

Methods

Functional Movement Screen (Cook et, al. 2006)

- Evaluation tool used to assess the fundamental movement patterns of an individual in a dynamic and functional capacity
- Movement patterns require elements of muscle strength, flexibility, range of motion, coordination, balance, and proprioception for successful completion
- Identifies an individual's functional limitations and / or asymmetries

Methods

Functional Movement Screen (Cook et, al. 2006)

- 7 movement patterns include:
  - Overhead squat, hurdle step, inline lunge, shoulder mobility, active straight leg raise, push-up, and rotary stability
- Each movement pattern is scored on a 0-3 ordinal scale
- Overall scores can range from 0 to 21
- Previous studies have suggested that low FMS scores of ≤14 have an association with musculoskeletal injuries in athletic (Chorba, et al. & Kiesel, et al.), general (Schneiders, et al. & Perry, et al.) and tactical (O'Conner, et al. & Lisman, et al.) populations

Methods

Occupational Measures

- Marksmanship
  - Standard police Z-4 target with a 9mm Glock pistol firing a total of 30 scoring rounds over several serials
- Defense Tactics
  - Restraining belligerent assailants and handcuffing
- Baton Strikes
  - Baton strikes to precise areas of designated static targets
- Tactical Options
  - Choose correct application of force to control a situation

Image: Approved by NSW Police

Results

- FMS scores ranged from 8 to 18 points (mean=13.9 ± 1.9 points)
- 11% (n=6) Failed the Marksmanship & Baton Strike assessments
- 21% (n=11) Failed Defensive Tactics
- 36% (n=19) Failed Tactical Options

Table 1: Descriptive statistics for occupational measures

Variables	n = Participants Pass Occupational Measure	FMS Mean (Points)	n = Participants Fail Occupational Measure	FMS Mean (Points)
Marksmanship	47	14.02 ± 1.994	6	13.50 ± 2.074
Defensive tactics	42	14.07 ± 2.005	11	13.55 ± 1.968
Baton strikes	47	13.96 ± 2.048	6	13.83 ± 1.602
Tactical Options	34	14.32 ± 1.718	19	13.32 ± 2.311

*$p = 0.077$

Results

Post hoc analysis

•Scaled FMS scores were converted to categorical pass (14+) or fail (<14) using scoring system associated with injury prediction

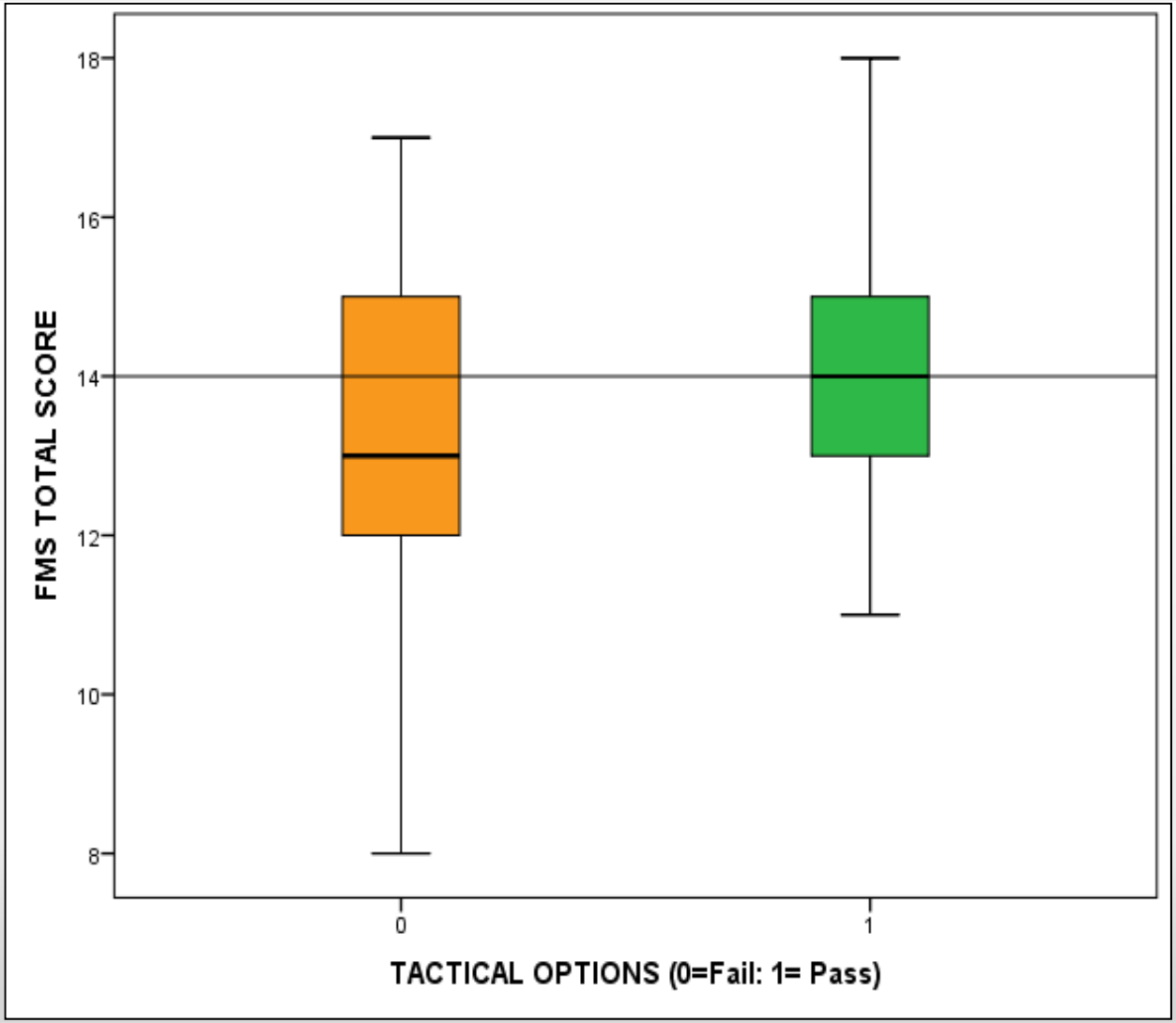
Table 2: Chi Square grouped by FMS <14 (Fail) and 14+ (Pass)

Variables	n = Participants Pass FMS	n = Participants Fail FMS	Chi Square tests		
			x^2	df	*P*
Marksmanship	47	6	-0.589	1	0.443
Defensive tactics	42	11	-0.444	1	0.505
Baton strikes	47	6	-0.019	1	0.891
Tactical Options	34	19	-3.627	1	0.057

•No significant relationship was found between the FMS scores and the Marksmanship performance, Defensive tactics assessment or Baton Strikes assessment

•Tactical Options assessment approached a significant relationship

Results



Discussion

The results of our study indicate a relationship was found between FMS scores and an occupational measure (Tactical Options assessment) of police recruits

Findings are supported by 3 studies

- Chapman, et al. 2013
- Lisman, et al. 2012
- Petersen, et al. 2007

Conclusion and Take Home Message

- Police occupation requires completion of dynamic tasks in which poor movements may lead to decreased performance and injury
- The current study suggests that the FMS may predict performance of the Tactical Options assessment
- Further research is required to advance the findings of this study within a larger cohort of police recruits

Images: Approved by NSW Police

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